News

Nobel prize in medicine awarded to MRI pioneers

Susan Mayor *London*

The 2003 Nobel prize in medicine has been awarded jointly to two scientists who played key parts in the development of magnetic resonance imaging (MRI), it was announced this week.

The Nobel Assembly at the Karolinska Institute in Stockholm, Sweden, awarded the prize in physiology or medicine jointly to Paul Lauterbur, professor of chemistry, biophysics, and computational biology at the University of Illinois, and Peter Mansfield, emeritus professor of physics, at the University of Nottingham, for their discoveries in MRI.

The announcement stated: "This year's Nobel laureates in medicine have made seminal discoveries concerning the use of magnetic resonance to visualise different structures. These discoveries have led to the development of modern magnetic resonance imaging, MRI, which represents a breakthrough in medical diagnostics and research."

The Nobel prize citation stated that Professor Lauterbur discovered the possibility of creating two-dimensional pictures of structures that could not be visualised using other methods, by introducing gradients in the magnetic field used in MRI. Professor Mansfield further developed the use of gradients in the magnetic field and showed how the signals could be analysed, making it possible to develop a useful imaging technique. He later discovered how to achieve very fast imaging—a crucial step in making MRI a practical tool for use in clinical medicine.

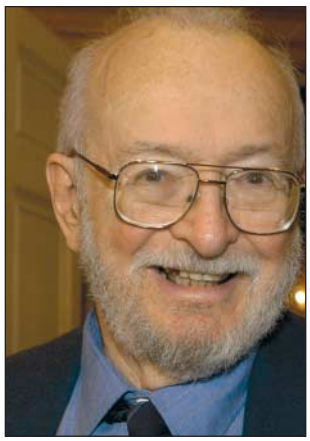
Both scientists, now in their 70s, carried out much of the work that has now been acknowledged with the Nobel prize in the 1970s. Professor Peter Mansfield said: "It is, I suppose, every scientist's hope that one day they may be singled out for such an honour, but I must say that in my case I did think about it a few years ago, but then dismissed it."

Commenting on the prize, Paul Matthews, Medical Research Council clinical research professor in the department of clinical neurology and director of the centre for functional MRI of the brain, University of Oxford, said: "This is being awarded for work that has made a very important, practical contribution to medical care delivery. This is very distinct from many recent prizes in medicine."

He explained that the speed of imaging made possible by Professor Mansfield's work in developing echo planer imaging had made it possible to achieve very rapid imaging, so that images of moving areas of the body—such as the heart or lungs—could be made. It had also facilitated the development of functional MRI. □

The Nobel prize citation can be seen at www.nobel.se/medicine/laureates/2003/press.html

AP PHOTO/SANG TAN



AP PHOTO/SETH PERLMAN

The winners: Professor Peter Mansfield (left) and Paul C Lauterbur

Teacher was refused job because relatives have Huntington's disease

Jane Burgermeister *Vienna*

A young teacher in Germany has been refused a permanent job on the grounds that members of her family have Huntington's disease and she is therefore at risk of developing the disease herself.

The teacher was identified as being at a high risk of Huntington's disease—a rare genetic disorder that runs in families—during a medical examination that all applicants to the German civil service, including teachers, have to undergo.

The case has raised concerns that employers could use the legal vacuum on genetic testing that currently exists in Germany to discriminate unfairly against employees.

Professor Spiritos Simitis, the chairman of the German National Ethics Council, which was set up to advise the government on ethical issues in the life sciences, condemned the decision of the Hessen educational authorities.

"A law that puts an acute disease that hinders people from performing a job on the same level as a mere prediction about what a person's health might be like in 10, 20, or 30 years is not acceptable," he said.

"It is not necessarily the case that this young teacher will have certain symptoms at a certain age," he added. "The authorities have rejected her for a job on the basis of a mere prediction and so placed the full burden of the risk on her."

Observing that no one has any guarantees about their future health, Professor Simitis argued that if the government was prepared to accept the risk that civil servants might develop alcoholism, depression, or other forms of ill health—as it does—then it should also accept the risks associated with genetic diseases.

He called on the government to introduce formal legislation to clarify rules for genetic testing.

The teacher is now contesting the decision in court.

Under German employment law, government authorities can reject candidates for the civil service, including teachers, on the grounds of ill health to minimise absenteeism and save money.

The occupational physician who carried out the medical check reported that the teacher was fit to perform her job but said that there was a "higher risk" of future absenteeism because members of her family have Huntington's disease. □